



DESKTOP COMPUTERS  
FOR  
ENGINEERS AND SCIENTISTS

digital

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# Professional Desktop Power You Get Only From Digital

Professional™ 350 desktop computers give engineers and scientists all the capabilities they want—and expect—from Digital Equipment Corporation. That's because for more than two decades, Digital has been the leader in providing minicomputer power to technical professionals, bringing experience and support to desktop computers that no other manufacturer can offer. With the Professional 350 desktop system, you'll have all the tools you need for problem solving: advanced hardware architecture, operating-system software, communications capabilities, and application software.

## The Professional 350 Desktop Computer—A Personal PDP-11™ Mini

The Professional 350 desktop computer is ideal for technical professionals who want to put the power of a minicomputer on their desks. This desktop computer is built around the same 16-bit central processor used in the PDP-11/23 computer, one of the famous PDP-11 family machines that thousands of engineers and scientists have come to depend on over the years. The Professional desktop computer is the lowest-cost PDP-11 system you can buy. It is also file-compatible with the VAX™-series computers, the worldwide standard for high performance minicomputers.

Unlike most desktop computers, the 350 is a multitasking machine, allowing you to do more than one job at a time. And the Professional 350 computer can include up to 10 Mbytes of high-speed hard disk storage, along with 800 Kbytes of floppy disk storage and up to 1 Mbyte of main memory.

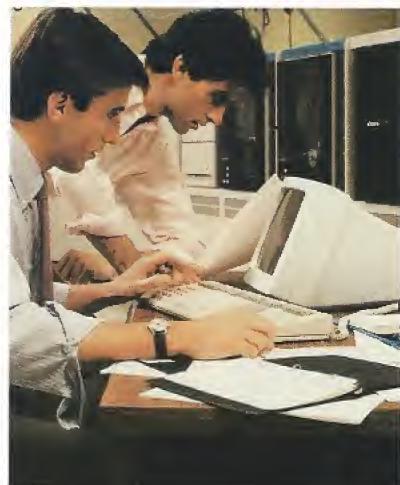
## The Professional 350 Desktop Offers a Wide Range of Tools

### *A Choice of Real-Time Interfaces*

For research and engineering environments, the Professional 350 computer can be connected to instruments for realtime data acquisition. The Professional Realtime Interface (RTI) Module combines the three most common types of I/O interfaces in one module:

- IEEE-488 (1978) General Purpose Interface Bus that allows the Professional computer to act as a controller, talker, or listener and to communicate with up to 14 compatible external devices.
- Two EIA RS232C-/RS423-compatible serial asynchronous ports with user-selectable baud rates (50 to 9,600 baud) and serial-word format (data word length, number of stop bits, parity) and modem control.
- A 24-line bidirectional parallel I/O port with 16 data lines and up to 8 control lines for connecting the Professional CPU to TTL external devices.

High-level software support for the RTI is available in the form of subroutines that can be called from FORTRAN, BASIC-PLUS-2, and other PRO/Tool Kit programming languages.



The Professional 350 "personal PDP-11" provides compatibility and communications with Digital's VAX/VMS superminicomputers and PDP-11 RSX-11/M minicomputers. Software developers, for instance, using VAX/VMS today will be familiar with the Professional 350 system's software development environment.



The RS/1™ software from Bolt Beranek and Newman, Inc. is one of many Professional 350 system technical applications available for engineers and scientists in industry and universities.



The Professional 350 desktop computer supports a Real Time Interface Module for a variety of signal analysis applications in engineering, laboratories, and manufacturing.

### *A Choice of Operating Systems*

For the technical user, Digital's Professional 350 desktop computer offers a choice of operating systems. These include Digital's proven minicomputer system software.

#### **Operating Systems Available for the Professional Computer**

P/OS	Personalized version of Digital's RSX-II/M-PLUS mini-computer operating system. Available from Digital Equipment Corporation.
PRO/RT-II	Compact realtime operating system, fully compatible with Digital's RT-II Version 5.1. Available from Digital Equipment Corp.
CP/M-80®	The Digital Research, Inc.'s operating system, available from Digital through a Professional option module, supports industry-standard 8-bit CP/M™ applications.
UCSD p-System	Standard microcomputer operating system.
VENIX™	Version of AT&T Labs' operating system providing sophisticated graphics support, available from VenturCom, Cambridge, Massachusetts.
XENIX™	Popular version of Bell Labs' UNIX® operating system for microcomputers, available from Microsoft, Inc., Seattle, Washington.
IDRIS™	Compact UNIX-like operating system, available from Whitesmith's Ltd., Concord, Massachusetts.

### *A Choice of Networking and Communications Capabilities*

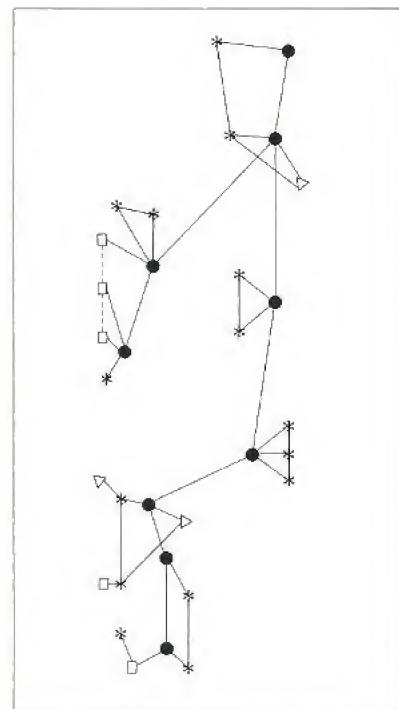
Extensive networking and communications capabilities are available with Digital's Professional 350 system. They allow technical professionals to share information and programs among desktop computers and to gain access to organizational resources including central computers, application programs, central databases, and communications networks.

The Professional 350 computer is built to serve as a freestanding computer and as a terminal to Digital's VAX and PDP-II systems. With this terminal-emulation capability, Digital's Professional 350 computer can put the full power of a VAX computer, for example, on the desk of an engineer or scientist. The Professional 350 desktop computer will also allow you access to other vendors' host computers and network services.

The Professional 350 computer also has the ability to transfer files directly between desktop computers or between desktop computers and VAX, PDP-II, and other vendors' host computers. With the MiniExchange package, Digital's Professional 350 desktop computers can connect to other Digital desktop computers (including Professional 350, Rainbow, and DECmate™ II systems), and a synchronous device within 200 feet (60 meters) to transfer files and documents. The Professional 350 supports local area networks (Ethernet), as part of DECnet communications.

### Professional Computer Networking and Communications Capabilities

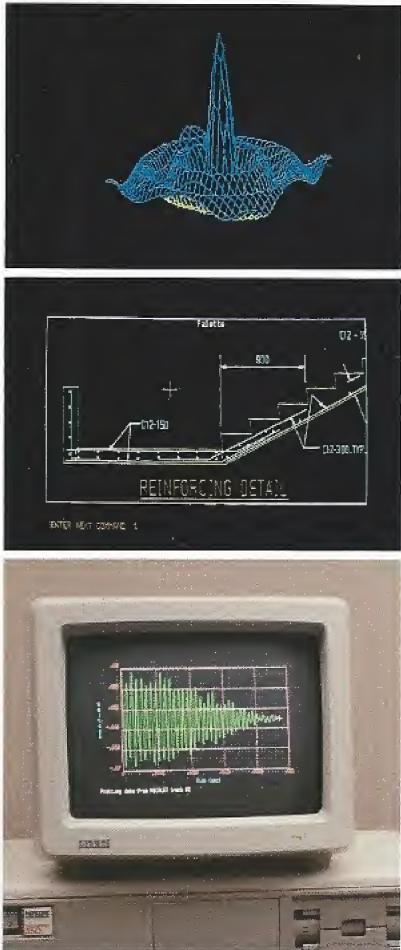
Application	Product
Terminal emulation and file transfer to Digital VAX/VMS and PSP-II RSX-II/M hosts	PRO/Communications
File transfer between Professional computers	PRO/Communications
Hardware connection between Professional desktop computers and Digital's personal computers	MicroSwitch
Communication to IBM hosts	PRISM™ software emulates 3276 bisynchronous protocol PRO-2780/3780 allows batch or file transfer interaction with IBM hosts
Integral modem	Telephone Management Systems (TMS) hardware option
Telephone communications	ProtoCall™ 350 option provides autodial from phone directory ProtoCall 1000 option includes ProtoCall 350 functionality and caller profile management
Network support	The Professional 350 computer is supported as a node in Ethernet-based DECnet networks.



#### Legend

- = VAX Computers
- = PDP-11 Computers
- \* = Digital Personal Computers
- = Communications
- △ = Non-Digital Systems

Extensive communications tools available for the Professional 350 computer allow flexible integration into a distributed processing solution with larger minicomputers and superminicomputers from Digital Equipment Corporation.



Many applications take advantage of the Professional 350 color bit map graphics. Top: Three dimensional data display. Middle: Stairway layout using Palette™ software from Palette Systems, Inc. Bottom: Signal displayed on Professional 350 computer with the Real Time Interface.

### **A Choice of Proven Software Packages for Engineering and Scientific Applications**

With Digital's desktop computers, engineers and scientists can run a broad selection of proven application programs. Some of these programs were previously available only on much larger, more expensive computers. For example, proven PDP-11 and VAX application packages have been rewritten for the Professional 350 desktop computer.

The list below is only a partial selection of the engineering and scientific applications and corresponding programs available.

### **Engineering and Scientific Software Packages for The Professional Computer**

#### **Computer-Aided Design and Drafting**

Design Graphix™/Executive CADD review software from Engineering Systems Corporation, Baton Rouge, Louisiana; distributed and supported by Digital Equipment Corp.

Palette™ two-dimensional CADD from Palette Systems, Inc., Burlington, Massachusetts.

#### **Data Analysis and Management**

RS/1™ integrated data management, analysis, and graphics from Bolt Beranek and Newman; distributed and supported by Digital Equipment Corporation.

TK!Solver™ and Mechanical Engineering TK!Solverpack™ from Software Arts, Inc.; distributed and supported by Digital Equipment Corp.

PRO/SPSS™ information analysis from SPSS, Inc., Chicago, Illinois.

#### **Microprocessor Software Development**

Universal Microprocessor Software Development System from Boston Systems Office, Inc., Waltham, Massachusetts.

microMAGIC™ software from Intelligent Industrial Systems, Secaucus, New Jersey.

#### **Structural Design and Analysis/Civil Engineering**

Structural and geotechnical design and analysis, including FRAME-II™, COMPOSBM™, TSTAB™, and TSLOPE™, from Design Professional Management Systems, Kirkland, Washington.

SCADA™ software from American Computers & Engineers, Los Angeles, California.

# All the Powerful Computing Tools You Need—and Expect—from Digital

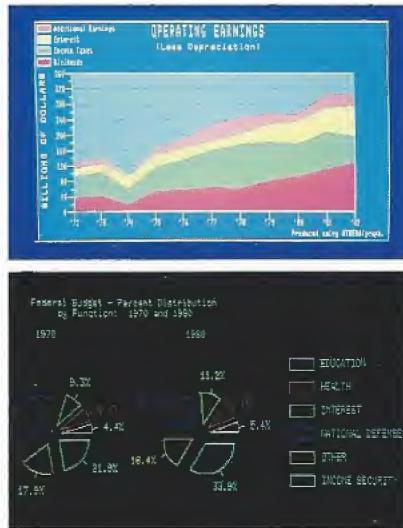
Over and above the application packages you need to accomplish specific jobs, Digital's desktop computers also give you a comprehensive set of general purpose computing tools. They include bit-map color graphics; software development tools; and personal productivity packages for spreadsheet, text editing, financial modeling, data management, and more.

## Personal Productivity Tools

Most technical professionals spend 60 to 70 percent of their working time on generic, nontechnical tasks. Digital's desktop computers can boost productivity substantially in these areas.

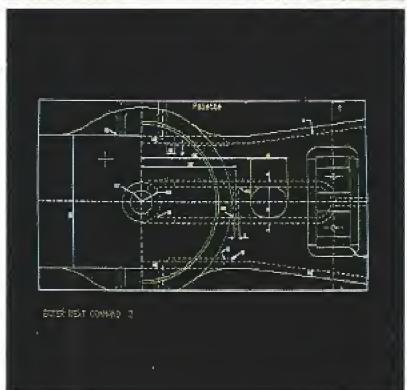
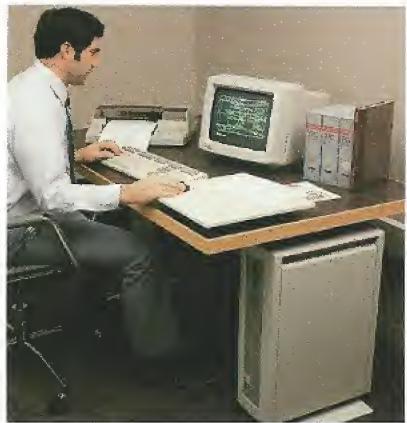
### Personal Productivity Software for the Professional Computer

Application	Software Packages
Integrated spreadsheet, graphics, data management, and text processing	PRO/Starter Kit
Spreadsheet	SUPERCOMP-TWENTY™ PRO/Digicalc
Database Management	NPL™ Information System PRO/DATATRIEVE
Financial Modeling	MAPS/PRO™ Financial Modeling FINGRAPH™ Graphics System
Business and Presentation Graphics	MAPS/PRO Graphics FINGRAPH Graphics System ATHENA™/Graph
Text Processing	PROSE-PLUS LEX-II™ from EEC Systems (Sudbury, Massachusetts)
with scientific character support:	CT*OS™ from Compu-tome Office Systems (Pasadena, California)
Desktop Productivity	The CORTEX Deskset



Professional 350 software for financial modeling and business graphics enhances productivity in the non-technical tasks that generally consume over 50 percent of technical professionals' time.

Digital's desktop computers can tie directly into the ALL-IN-1™ integrated office automation system running on a VAX computer.



A designer uses Palette software from Palette Systems, Inc. on the Professional 350 to create a railroad coupling design.

### Bit-Map Color Graphics Tools

Extensive graphics capabilities are most valuable in many scientific and engineering tasks. Digital's desktop computers offer sophisticated bit-map color graphics for design, display, and plotter support for hard copies of engineering and scientific data, drawings, diagrams, and business graphics.

### Professional Computer Graphics Capabilities

Capability	Professional Hardware/Software
Standard and optional capabilities	<ul style="list-style-type: none"><li>• Standard bit-map video graphics: 960 x 240 x 1 resolution</li><li>• Advanced-video option for two additional planes display memory; supports 8 colors out of palette of 256</li><li>• Graphics protocol based on 2-D subset of ANSI standard CORE</li><li>• NAPLPS standard support for Videotext</li><li>• Optional IVIS video disk support</li><li>• Graphics subroutines accessible from high-level languages, e.g., FORTRAN</li><li>• Support for Digital's LVP16 multipen plotter, LA50 and LA100 dot matrix printers, and LQP02 letter quality printer</li><li>• Optional VT125™ graphics terminal emulation</li></ul>
Technical Charts and Graphs	<ul style="list-style-type: none"><li>• RS/1</li><li>• TK!Solver</li></ul>
Business and Presentation Graphics	<ul style="list-style-type: none"><li>• MAPS/PRO Graphics</li><li>• FINGRAPH Graphics System</li><li>• ATHENA/Graph</li></ul>

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## **Software Development Tools**

With Digital's desktop computers, technical professionals have a choice of a variety of technically oriented languages such as FORTRAN-77 and PASCAL, as well as several approaches to software development.

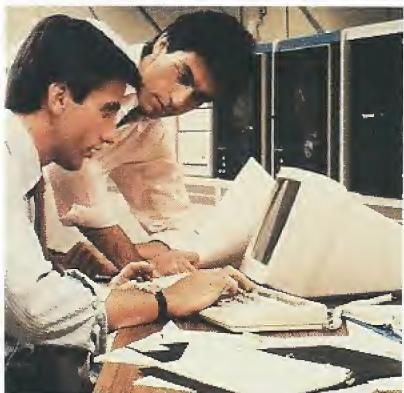
With the Professional 350 computer, technical professionals can develop software in the familiar minicomputer development environment they're used to working in already. The Professional 350 hardware is designed around a PDP-11 microprocessor, and its operating system (P/OS™) is a personalized version of the proven RSX™-11M-PLUS operating system.

Compatibility across Digital's family means the programmer can take advantage of program and file compatibility between VAX, PDP-11, and Professional systems; version-to-version control; familiarity with Digital languages and libraries; and standard access routines for high-level languages, yielding consistent source code from programmer to programmer.

### **Professional Computer Program Development Tools**

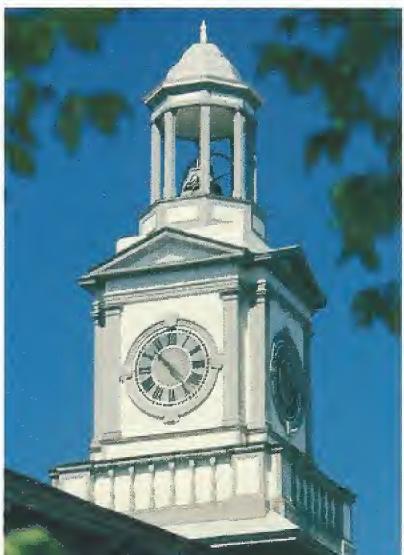
FORTRAN-77	LINKER (PAB)
FORTRAN-77 DEBUG	APPLICATION DISKETTE BUILDER (ADB)
DIBOL™	DCL COMMAND LANGUAGE (PRO/TOOL KIT ONLY)
MACRO-11 ASSEMBLY LANGUAGE	EDT TEXT EDITOR (PRO/TOOL KIT ONLY)
COBOL-8I	RMD, LIBR, ZAP, RMS UTILITIES (PRO/TOOL KIT ONLY)
PASCAL	INDIRECT COMMAND FILE PROCESSOR (PRO/TOOL KIT ONLY)
WHITESMITH'S C	FULL TECHNICAL DOCUMENTATION SET
BASIC-PLUS-2	PRO/CORT CALLABLE SORTING TASK
DEBUGGERS	FRAME DEVELOPMENT TOOL
PRO/FMS-11™ FORMS MANAGEMENT SYSTEM	
PRO/RMS-11 RECORD MANAGEMENT SYSTEM	
GRAPHICS and COMMUNICATIONS LIBRARIES	

# Three Important Benefits Only Digital Can Offer



## Compatibility and Communications with VAX and PDP-11 Computers

Digital's Professional 350 computer offers a level of compatibility and communications capability that few other desktop computers can rival. Many of the same applications that run on VAX and PDP-11 computers now also run on the Professional desktop PDP-11 computers. The Professional 350 desktop computer can communicate with VAX and PDP-11 computers. And Professional desktop computers running the P/OS operating system even use the same file structure as Digital's popular RSX-II/M and VAX-VMS™ system software. This means that applications running on a Professional computer can share data with applications on larger hosts. The Professional computer also provides a familiar and powerful environment for software developers who have used the DCL interface and other utilities on VAX computers.



## The Digital Heritage

Digital Equipment Corporation has been a leader in supplying computer systems to engineers and scientists for more than 25 years. We have a heritage of providing computers for technical uses. There are more PDP-11 computers at work in technical applications than any other family of computers. And the VAX family is, quite simply, the standard by which all other 32-bit minicomputers for technical applications are measured. With that kind of heritage behind us, it's certainly no surprise that we designed our desktop computers with the technical user in mind. As a result, Digital's desktop computers have what it takes to do the job in demanding technical applications.

## Digital Support

Digital offers you a complete desktop computer support plan that few other vendors in the industry can match. Digital employs 78,500 people in 640 sales, service, manufacturing and engineering facilities in 44 countries.

The backbone of Digital's support philosophy has always been the reliability of the products themselves. Digital's engineers use today's most advanced methods and finest engineering tools to build software and hardware you can count on.

For more information regarding the programs, products, and applications, consult your Digital sales representative.



Top: The Professional 350 "personal PDP-11" provides maximum personal system compatibility with Digital's larger VAX and PDP-11 computers. Middle: The mill tower clock at Digital Equipment Corporation's Maynard, Massachusetts, headquarters, the symbol of a leading supplier of technical computing products for more than 25 years. Bottom: Digital offers hard-to-match support for personal and desktop systems, backed by 78,500 employees worldwide.



## **Computer-Aided Engineering And Manufacturing Group**

Digital Equipment Corporation has been a leader in computing tools for over 26 years. Digital's Computer Aided Engineering and Manufacturing (CAEM) Group is dedicated to providing the best available solutions to engineering and manufacturing users. The CAEM Group will show you how to remain competitive with computing tools ranging from desktop computers to integrated computing, where computer-based information is shared throughout a company. These systems are designed to provide the best price/performance and work with proven software for a variety of functions. And for integrated computing, these systems are designed for efficient communications with one another.

For more information about the CAEM Group's solutions for engineering and manufacturing, or how we can help you integrate your computing operations throughout your company, call (617) 467-6000. Or write to us at the following offices:

### **USA**

Digital Equipment Corporation  
CAEM Group  
MRO3-1/E8  
Two Iron Way  
Marlboro, MA 01752

### **Europe**

Digital Equipment Corporation  
International (Europe)  
Applications Marketing  
12, avenue des Morgines  
CH-1213 Petit-Lancy 1  
Geneva, Switzerland  
Tel: [41]-22-933311

### **Japan**

Nihon Digital Equipment Corporation  
Sunshine 60  
P.O. Box 1135  
1-1 Higashi Ikebukuro 3-Chome  
Toshima-ku, Tokyo 170  
Tel: [81]-(3)-9897111

### **Hong Kong**

Digital Equipment Hong Kong Ltd.  
5-7 Intercontinental Plaza  
94 Granville Road  
Tsimshatsui East  
Kowloon, Hong Kong  
Tel: [852]-(3)-7315211

### **Canada**

Digital Equipment of Canada Ltd.  
P.O. Box 13000  
Kanata, Ont., Canada K2K 2A6  
Tel: (613) 592-5111

### **Australia**

Digital Equipment Corporation (Australia) Pty. Ltd.  
P.O. Box 384  
Chatswood, New South Wales 2067  
Australia  
Tel: [61]-(2)-4125252

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